

**NORTH CAROLINA DIVISION OF AIR QUALITY****General Air Permit Review – Air Curtain Incinerators****Permit Issue Date:** N/A

This engineering review is applicable to air curtain incinerators that burn 100 percent wood waste, 100 percent clean lumber, 100 percent yard waste or a mixture of only the above materials.

Facility Data				Permit Applicability (this application only)			
<b>Applicant (Facility's Name):</b> N/A				<b>SIP:</b> 02D .1904, 02Q .0509			
<b>Facility Address:</b> N/A				<b>NSPS:</b> 02D .0524 – 40 CFR Subpart CCCC (only 40 CFR 60.2242 through 60.2260)			
<b>SIC:</b> 4953				<b>NESHAP:</b> N/A			
<b>NAICS:</b> 562213				<b>PSD:</b> N/A			
<b>Facility Classification: Before:</b> New/Small/Synthetic Minor <b>After:</b> General Title V				<b>PSD Avoidance:</b> N/A			
<b>Fee Classification: Before:</b> New/Small/Synthetic Minor <b>After:</b> General Title V				<b>NC Toxics:</b> N/A			
				<b>112(r):</b> N/A			
				<b>Other:</b> 02D .1806 (Odor)			
Contact Data				Application Data			
<b>Facility Contact</b> N/A	<b>Authorized Contact</b> N/A	<b>Technical Contact</b> N/A		<b>Application Number:</b> N/A			
				<b>Date Received:</b> N/A			
				<b>Application Type:</b> Modification			
				<b>Application Schedule:</b> General Title V			
				<b>Existing Permit Data</b>			
				<b>Existing Permit Number:</b> N/A			
				<b>Existing Permit Issue Date:</b> N/A			
				<b>Existing Permit Expiration Date:</b> N/A			
<b>Total Actual emissions in TONS/YEAR:</b>							
<b>CY</b>	<b>SO2</b>	<b>NOX</b>	<b>VOC</b>	<b>CO</b>	<b>PM10</b>	<b>Total HAP</b>	<b>Largest HAP</b>
<b>Review Engineer:</b> Jeff Twisdale				<b>Comments / Recommendations:</b>			
<b>Review Engineer's Signature:</b> <b>Date:</b> N/A				<b>Issue:</b> N/A			
				<b>Permit Issue Date:</b> N/A			
				<b>Permit Expiration Date:</b> N/A			

**I. Introduction:**

An air curtain incinerator (ACI) means a stationary or portable incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor. Air curtain incinerators are different from conventional combustion devices which typically have enclosed fireboxes and controlled air technology such as mass burn, modular, and fluidized bed combustors.

Section 129 of the Clean Air Act directs the Environmental Protection Agency's (EPA) Administrator to develop regulations under Section 111 of the Act limiting emissions of nine air pollutants (i.e., particulate matter, carbon monoxide, dioxins/furans, sulfur dioxide, nitrogen oxides, hydrogen chloride, lead, mercury, and cadmium) from four categories of solid waste incineration units: municipal solid waste; hospital, medical and infectious solid waste; commercial and industrial solid waste; and other solid waste. EPA promulgated the New Source Performance Standards (NSPS) and Emission Guidelines (EG) to reduce air pollution from commercial and industrial solid waste incineration (CISWI) units, under Subparts CCCC and DDDD. Those standards and guidelines apply to incinerators, also known as CISWI units, used by commercial and industrial facilities to burn non-hazardous solid waste. NSPS Subpart CCCC applies to new CISWI units that commenced construction after June 4, 2010, or that commenced reconstruction or modification after August 7, 2013 while NSPS Subpart DDDD applies to existing CISWI units.

An air curtain incinerator is a CISWI unit that shall meet certain provisions of NSPS Subpart CCCC if the following conditions are met. Pursuant to 40 CFR 60.2020, air curtain incinerators that burn only the materials listed in paragraphs (1) through (3) below are only required to meet the requirements under “Air Curtain Incinerators” (40 CFR 60.2245 through 60.2260).

- (1) 100 percent wood waste: *Wood waste means untreated wood and untreated wood products, including tree stumps (whole or chipped), trees, tree limbs (whole or chipped), bark, sawdust, chips, scraps, slabs, millings, and shavings. Wood waste does not include: Grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands, construction, renovation, or demolition wastes, or clean lumber.*
- (2) 100 percent clean lumber: *Clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Clean lumber does not include wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote.*
- (3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste: *Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands.*

Also, the owner or operator of each CISWI and air curtain incinerator (ACI) shall apply for and obtain a Title V operating permit pursuant to 40 CFR 60.2242 as required by Section 129(e) and Title V of the Clean Air Act.

Therefore, air curtain incinerators shall be subject to Section 15A NCAC 02Q .0500, Title V Procedures. The owner or operator of a new ACI as defined above and in 40 CFR 60.2015 that meets the requirements in 40 CFR 60.2020(i) shall obtain a General Title V Operating Permit pursuant to 15A NCAC 02Q .0509 Permitting of Numerous Similar Facilities. Pursuant to 15A NCAC 02Q .0509, the Director may issue, after notice and opportunity for public participation provided in 15A NCAC 02Q .0521, a permit to cover numerous similar facilities or sources.

## II. Purpose of this Engineering Evaluation:

The purpose of this engineering review is to evaluate the rules and standards applicable to the air curtain incinerators that burn 100 percent wood waste, 100 percent clean lumber, and 100 percent mixture of only wood waste, clean lumber and/or yard waste.

## III. Regulatory Review:

- A. Air curtain incinerators are also considered to be air curtain burners that are subject to 15A NCAC 02D .1904.

### 15A NCAC 02D .1904: AIR CURTAIN BURNERS

1.
  - a. Air quality permits are required for air curtain burners subject to 40 CFR 60.2245 through 60.2265, or located at permanent sites or where materials are transported in from another site.
  - b. Air quality permits are not required for air curtain burners located at temporary land clearing or right-of-way maintenance sites for less than nine months unless they are subject to 40 CFR 60.2245 through 60.2265.
  - c. The operation of air curtain burners in particulate and ozone nonattainment areas shall cease in any area that has been forecasted by the Department, or the Forsyth County Environmental Affairs Department for the Triad air quality forecast area, to be in an Air Quality Action Day “Code Orange” or above during the time period covered by that forecast.
2. Air curtain burners shall comply with the following conditions and stipulations:
  - a. *Prevailing winds* - The wind direction at the time that the burning is initiated and the wind direction as forecasted by the National Weather Service during the time of the burning shall be away from any area, including public roads within 250 feet of the burning as measured from the edge of the pavement or other roadway surface, which may be affected by smoke, ash, or other air pollutants from the burning;
  - b. *Materials allowed to be burned* - Only collected land clearing and yard waste materials may be burned. Heavy oils, asphaltic materials, items containing natural or synthetic rubber, tires, grass clippings, collected leaves, paper products, plastics, general trash, garbage, or any materials containing painted or treated wood materials shall not be burned. Leaves still on trees or brush may be burned;
  - c. *Ban of burning* - No fires shall be started or material added to existing fires when the North Carolina Forest Service has banned burning for that area;

- d. *Permissible hours of operation* - Burning shall be conducted only between the hours of 8:00 a.m. and 6:00 p.m.;
- e. *Maximum source operating periods* - The air curtain burner shall not be operated more than the maximum source operating hours-per-day and days-per-week. The maximum source operating hours-per-day and days-per-week shall be set to protect the ambient air quality standard and prevention of significant deterioration (PSD) increment for particulate. The maximum source operating hours-per-day and days-per-week shall be determined using the modeling procedures in 15A NCAC .02D .1106(b), (c), and (f). This Subparagraph shall not apply to temporary air curtain burners;
- f. *Visible emissions certification and Testing* - An air curtain burner with an air quality permit shall have onsite at all times during operation of the burner a visible emissions reader certified according to 40 CFR Part 60, Method 9 to read visible emissions, and the facility shall test for visible emissions within five days after initial operation and within 90 days before permit expiration;
- g. *Manufacturer's specifications* - Air curtain burners shall meet manufacturer's specifications for operation and upkeep to ensure complete burning of material charged into the pit. Manufacturer's specifications shall be kept on site and be available for inspection by Division staff;
- h. *Opacity Limits* - Except during start-up, visible emissions shall not exceed ten percent opacity when averaged over a six-minute period except that one six-minute period with an average opacity of more than ten percent but no more than 35 percent shall be allowed for any one-hour period. During start-up, the visible emissions shall not exceed 35 percent opacity when averaged over a six-minute period. Start-up shall not last for more than 45 minutes, and there shall be no more than one start-up per day. Instead of complying with the opacity standards in this Subparagraph, air curtain burners subject to:  
(1) 40 CFR 60.2245 through 60.2265 shall comply with the opacity standards in 40 CFR 60.2250.
- i. *Operating conditions* - The owner or operator of an air curtain burner shall not allow ash to build up in the pit to a depth higher than one-third of the depth of the pit or to the point where the ash begins to impede combustion, whichever occurs first. The owner or operator of an air curtain burner shall allow the ashes to cool and water the ash prior to its removal to prevent the ash from becoming airborne. The owner or operator of an air curtain burner shall not load material into the air curtain burner such that it will protrude above the air curtain;
- j. *Start-up conditions* - Only distillate oil, kerosene, diesel fuel, natural gas, or liquefied petroleum gas may be used to start the fire; and
- k. *Required distances* - The location of the burning shall be at least 300 feet from any dwelling, group of dwellings, or commercial or institutional establishment, or other occupied structure not located on the property on which the burning is conducted. The regional office supervisor may grant exceptions to the setback requirements if a signed, written statement waiving objections to the air curtain burning is obtained from a resident or an owner of each dwelling, commercial or institutional establishment, or other occupied structure within 300 feet of the burning site. In case of a lease or rental agreement, the lessee or renter, and the property owner shall sign the statement waiving objections to the burning. The statement shall be submitted to and approved by the regional office supervisor before initiation of the burn. Factors that the regional supervisor shall consider in deciding to grant the exception include: all the persons who need to sign the statement waiving the objection have signed it; the location of the burn; and the type, amount, and nature of the combustible substances.

Compliance with 15A NCAC 02D .1904 does not relieve any owner or operator of an air curtain burner from the necessity of complying with other air quality rules.

#### **Recordkeeping Requirements**

- 3. The owner or operator of an air curtain burner at a permanent site shall keep a daily log of specific materials burned and amounts of material burned in pounds per hour and tons per year. The logs at a permanent air curtain burner site shall be maintained on site for a minimum of two years and shall be available at all times for inspection by the Division of Air Quality. The owner or operator of an air curtain burner at a temporary site shall keep a log of total number of tons burned per temporary site.

Additionally, the owner or operator of air curtain burner subject to the following:

- a. 40 CFR 60.2245 through 60.2265 shall comply with the monitoring, recordkeeping, and reporting requirements in 40 CFR 60.2245 through 60.2265.

4. A person may use a burner using a different technology or method of operation than an air curtain burner as defined under 15A NCAC 02D .1902 of this Section if he demonstrates to the Director that the burner is at least as effective as an air curtain burner in reducing emissions and if the Director approves the use of the burner. The Director shall approve the burner if he finds that it is at least as effective as an air curtain burner. This burner shall comply with all the requirements of 15A NCAC 02D .1904.
5. In addition to complying with the requirements of 15A NCAC 02D .1904, an air curtain burner subject to:
  - a. 40 CFR Part 60, Subpart CCCC that commenced construction after June 4, 2010, or that commenced reconstruction or modification on or after August 7, 2013, shall also comply with 40 CFR 60.2245 through 60.2265.

15A NCAC 02D .1904 requirements will continue to apply unless NSPS 40 CFR Part 60 Subpart CCCC requirements apply as detailed in the rule. Compliance is expected with 02D .1904 assuming the operating, testing and recordkeeping requirements will be met with proper operation of the air curtain incinerator.

- B.** Air curtain incinerators also classified as Commercial and Industrial Solid Waste Incineration (CISWI) units are subject to 15A NCAC 02D .0524 - NSPS 40 CFR 60 Subpart CCCC for those ACIs that commence construction after June 4, 2010, or for those ACIs units that commence modification or reconstruction on or after August 7, 2013.

**1. 15A NCAC 02D .0524: NSPS 40 CFR PART 60 SUBPART CCCC — Standards of Performance for Commercial and Industrial Solid Waste Incineration Units**

- a. The Permittee shall comply with all applicable provisions, including the notification, testing, monitoring, recordkeeping and reporting requirements contained in Environmental Management Commission Standard 15A NCAC 02D .0524 "New Source Performance Standards (NSPS) as promulgated in 40 CFR Part 60 Subpart CCCC, including Subpart A "General Provisions."
- i. Air curtain incinerators that burn only the materials listed in subparagraphs (a)(i)(1) through (3) below are only required to meet the requirements under "Air Curtain Incinerators" (40 CFR 60.2245 through 60.2260).
  - (1) 100 percent wood waste: *Wood waste means untreated wood and untreated wood products, including tree stumps (whole or chipped), trees, tree limbs (whole or chipped), bark, sawdust, chips, scraps, slabs, millings, and shavings. Wood waste does not include: Grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands, construction, renovation, or demolition wastes, or clean lumber.*
  - (2) 100 percent clean lumber: *Clean lumber means wood or wood products that have been cut or shaped and include wet, air-dried, and kiln-dried wood products. Clean lumber does not include wood products that have been painted, pigment-stained, or pressure-treated by compounds such as chromate copper arsenate, pentachlorophenol, and creosote.*
  - (3) 100 percent mixture of only wood waste, clean lumber, and/or yard waste: *Yard waste means grass, grass clippings, bushes, shrubs, and clippings from bushes and shrubs. They come from residential, commercial/retail, institutional, or industrial sources as part of maintaining yards or other private or public lands.*
- ii. An air curtain incinerator operates by forcefully projecting a curtain of air across an open chamber or open pit in which combustion occurs. Incinerators of this type can be constructed above or below ground and with or without refractory walls and floor. (*Air curtain incinerators are not to be confused with conventional combustion devices with enclosed fireboxes and controlled air technology such as mass burn, modular, and fluidized bed combustors.*)

[15A NCAC 02D .0524, 40 CFR 60.2245]

**Emission Limitations** [15A NCAC 02D .0524, 40 CFR 60.2250]

- b. Visible emissions from the air curtain incinerator shall not be more than 10 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values), except as described in paragraph c. below.

- c. Visible emissions from the air curtain incinerator shall not be more than 35 percent opacity (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) during the startup period that is within the first 30 minutes of operation.

**Testing** [15A NCAC 02D .0524, 40 CFR 60.2255]

- d. Within 60 days after your air curtain incinerator reaches the charge rate at which it will operate, but no later than 180 days after its initial startup, the Permittee shall conduct the following performance tests:
  - i. Use Method 9 of Appendix A of 40 CFR Part 60 and in accordance with General Condition JJ to determine compliance with the opacity limitations.
  - ii. Conduct an initial test for opacity as specified in 40 CFR 60.8.
- e. After the initial test for opacity, the Permittee shall conduct annual tests no more than 12 calendar months following the date of your previous test.  
If the results of these tests are above the limit given in Section B.1.b–c., above, the Permittee shall be deemed in noncompliance with 15A NCAC 02D .0524.

**Recordkeeping/Reporting** [15A NCAC 02D .0524, 40 CFR 60.2260]

- f. The Permittee shall record, maintain and report the following:
  - i. Prior to commencing construction on your air curtain incinerator, submit the three items described in subparagraphs (f)(i)(1) through (3) below.
    - (1) Notification of your intent to construct the air curtain incinerator.
    - (2) Planned initial startup date.
    - (3) Types of materials you plan to burn in your air curtain incinerator.
  - ii. Keep records of results of all initial and annual opacity tests onsite in either paper copy or electronic format, unless the Administrator approves another format, for at least 5 years.
  - iii. Make all records available for submittal to the Administrator or for an inspector's onsite review.
  - iv. Submit the results (as determined by the average of three 1-hour blocks consisting of ten 6-minute average opacity values) of the initial opacity tests no later than 60 days following the initial test. Submit annual opacity test results within 12 months following the previous report.
  - v. Submit initial and annual opacity test reports as electronic or paper copy on or before the applicable submittal date.
  - vi. Keep a copy of the initial and annual reports onsite for a period of 5 years.

Compliance is expected with 15A NCAC 02D .0524 NSPS Subpart CCCC assuming the opacity limits, testing, recordkeeping and reporting requirements will be met with proper operation of the air curtain incinerator.

- C. Air curtain incinerators may have some objectionable odors beyond the facility's boundary, and therefore are subject to 15A NCAC 02D .1806 for control and prohibition of odorous emissions.

**1. 15A NCAC 02D .1806: CONTROL AND PROHIBITION OF ODOROUS EMISSIONS**

The Permittee shall not operate the facility without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

Compliance is expected with 02D .1806 with proper operation of the air curtain incinerator.

- D. Air curtain incinerators are very similar facilities with regard to operation and resulting emissions, and therefore may be granted a General Title V Permit by the Director in accordance with 15A NCAC 02Q .0509.

**1. 15A NCAC 02Q .0509 PERMITTING OF NUMEROUS SIMILAR FACILITIES**

- (a) The Director may issue, after notice and opportunity for public participation provided in 15A NCAC 02Q .0521 of this Section (Title V Procedures), a permit to cover numerous similar facilities or sources.
- (b) The Director shall not issue a permit under this Rule unless the following conditions are met:
  - (1) There is no unique difference that would require special permit conditions for any individual facility; and
  - (2) No unique analysis is required for any facility covered under the permit.
- (c) A permit issued under this Rule shall comply with all the requirements of this Section.

- (d) A permit issued under this Rule shall identify criteria by which facilities or sources may qualify for the permit. To facilities or sources that qualify, the Director shall grant the terms and conditions of the permit.
- (e) The facility or source shall be subject to enforcement action for operating without a permit if the facility or source is later determined not to qualify for the terms and conditions of the permit issued under this Rule.
- (f) Sources subject to Title IV shall not be eligible for a permit issued under this Rule.
- (g) The owner or operator of a facility or source that qualifies for a permit issued under this Rule shall apply for coverage under the terms of the permit issued under this Rule or shall apply for a regular permit under this Section.
- (h) The Division need not repeat the public participation procedures required under 15A NCAC 02Q .0521 of this Section (Title V Procedures) when it grants a request by a permit applicant to operate under a permit issued under this Rule.

The air curtain incinerator meets the above criteria, and the Director has granted the terms and conditions for a General Title V Permit for air curtain incinerators.

Therefore, this engineer recommends issuance of General Title V Permit **XXXXGXX** for this air curtain incinerator.